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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,467	06/14/2001	Tsutomu Takayama	1232-4724	2685

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EXAMINER

EDWARDS, PATRICK L

ART UNIT PAPER NUMBER

2624

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/883,467

Applicant(s)

TAKAYAMA ET AL.

Examiner

Patrick L. Edwards

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,7-36,40,42-71,75 and 77-110 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-9, 22-25, 32, 42-44, 57-60, 67, 77-79, 92-95, 102, 106-110 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims withdrawn from consideration are 1,5,10-21,26-31,33-36,40,45-56,61-66,68-71,75,80-91,96-101 and 103-105.

Art Unit: 2624

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05-12-2006 has been entered.

2. This is a request for continued examination. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

3. Applicant's arguments filed on 05-12-2006 have been fully considered. A response to these arguments is provided below.

Prior Art Rejections

Summary of Argument:

Applicant alleges that the Florent reference could not be combined with the Edgar reference because the Edgar reference teaches away (remarks pgs. 28-29).

Examiner's Response:

This argument is unpersuasive. Florent is brought in for the teaching of calculating a threshold on the basis of a generated histogram. One skilled in the art would have used Florent for this narrow purpose, and Edgar does not teach away from this combination.

Art Unit: 2624

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7, 32, 42, 67, 77, 102, and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Edgar (USPN 5,266,805), Florent (USPN 5,832,111), and Maeda et al. (US 2003/0128889)

With regard to claim 102, which is representative of claims 32 and 67, Edgar discloses a visible light source for mainly emitting visible light, an infrared light source for mainly emitting infrared light and a photoelectric converter for converting an optical image into an electrical signal (Edgar col. 7 lines 10-28). The color camera disclosed in Edgar is a photoelectric converter which converts an optical image into an electrical signal as recited in the claim.

Edgar further discloses a means for comparing a threshold value with infrared image signal components and extracting infrared image signal components not more than the threshold value (Edgar col. 12 lines 26-30).

Edgar further discloses a means for executing an interpolation process of a visible light image signal on the basis of the infrared image signal components not more than the threshold value (Edgar col. 12 lines 30-35). Although the Edgar reference discloses comparing infrared image signal components to a threshold value in order to determine the existence of a defect, it fails to expressly disclose a means for determining the threshold value. Florent, however, discloses a means for generating a histogram on the basis of an infrared image signal and calculating a threshold value on the basis of that histogram (Florent col. 1 lines 14-19).

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Edgar's image reading apparatus by calculating a threshold value on the basis of a generated histogram as taught by Florent. Such a modification would have allowed for a system in which the threshold value was determined from the grey levels of the image (Florent col. 3 lines 40-43). This would have decreased uncertainty about the choice of a threshold value and consequently allowed for more accurate defect detection (Florent col. 3 lines 40-43).

The combination of Edgar and Florent discloses processing visible image signals and infrared image signals for an entire image, but fails to expressly disclose performing this process on an image which has been segmented into a plurality of blocks. Maeda, however, discloses segmenting an infrared image signal in a plurality of blocks and performing visible and image signal processing on the respective blocks (Maeda paragraph [0121]).

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Edgar and Florent's image reading apparatus by segmenting the infrared image into a plurality of blocks as taught by Maeda. Such a modification would have allowed for the accurate detection of image defects (Maeda paragraph [0119]).

With regard to claim 106, Edgar further discloses a computer program product comprising a computer usable medium having computer readable program code (Edgar col. 8 lines 5-9).

Art Unit: 2624

With regard to claim 77, which is representative of claims 7 and 42, Florent discloses generating a histogram of frequencies of occurrence of respective gray levels of the infrared image signal (Florent col. 1 lines 34-40).

Regarding claims 107-110, Edgar discloses an infrared signal which is not uniform (see Figure 1 of Edgar).

6. Claims 8-9, 22-25, 43-44, 57-60, 78-79, and 92-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Edgar and Florent as applied to claims 7, 42 and 77 above, and further in view of Nichani et al (USPN 5,949,905). The arguments as to the relevance of the aforesaid combination as applied above are incorporated herein.

With regard to claims 78 and 79, which are representative of claims 8, 9, 43 and 44, Nichani discloses calculating a threshold value by subtracting a value given by a predetermined relation from a gray leveling representing an image (Nichani col. 3 lines 20-27). Nichani further discloses calculating a standard deviation and determining the value to be subtracted on the basis of the standard deviation (Nichani col. 3 lines 20-27). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Edgar and Florent's image reading apparatus by specifying that a threshold value is determined on the basis of a calculated standard deviation as taught by Nichani. Such a modification would have allowed for a system that could detect defect signals based on their deviation from a given set value.

With regard to claim 92, which is representative of claims 22 and 57, Nichani discloses calculating an average gray level of the histogram and calculating the threshold value by subtracting a predetermined value from the average gray level (Nichani col. 3 lines 20-27).

With regard to claim 93, which is representative of claims 23 and 58, Nichani discloses that the predetermined value is pre-stored (Nichani col. 2 lines 61-67). The standard deviation values disclosed in Nichani are pre-stored.

With regard to claim 94, which is representative of claims 24 and 59, Nichani discloses that the predetermined values are externally input (Nichani col. 3 lines 48-52).

With regard to claim 95, which is representative of claims 25 and 60, Nichani discloses calculating a standard deviation and determining the predetermined value on the basis of the standard deviation (Nichani col. 3 lines 20-27).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L. Edwards whose telephone number is (571) 272-7390. The examiner can normally be reached on 8:30am - 5:00pm M-F.

Art Unit: 2624

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 2624

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